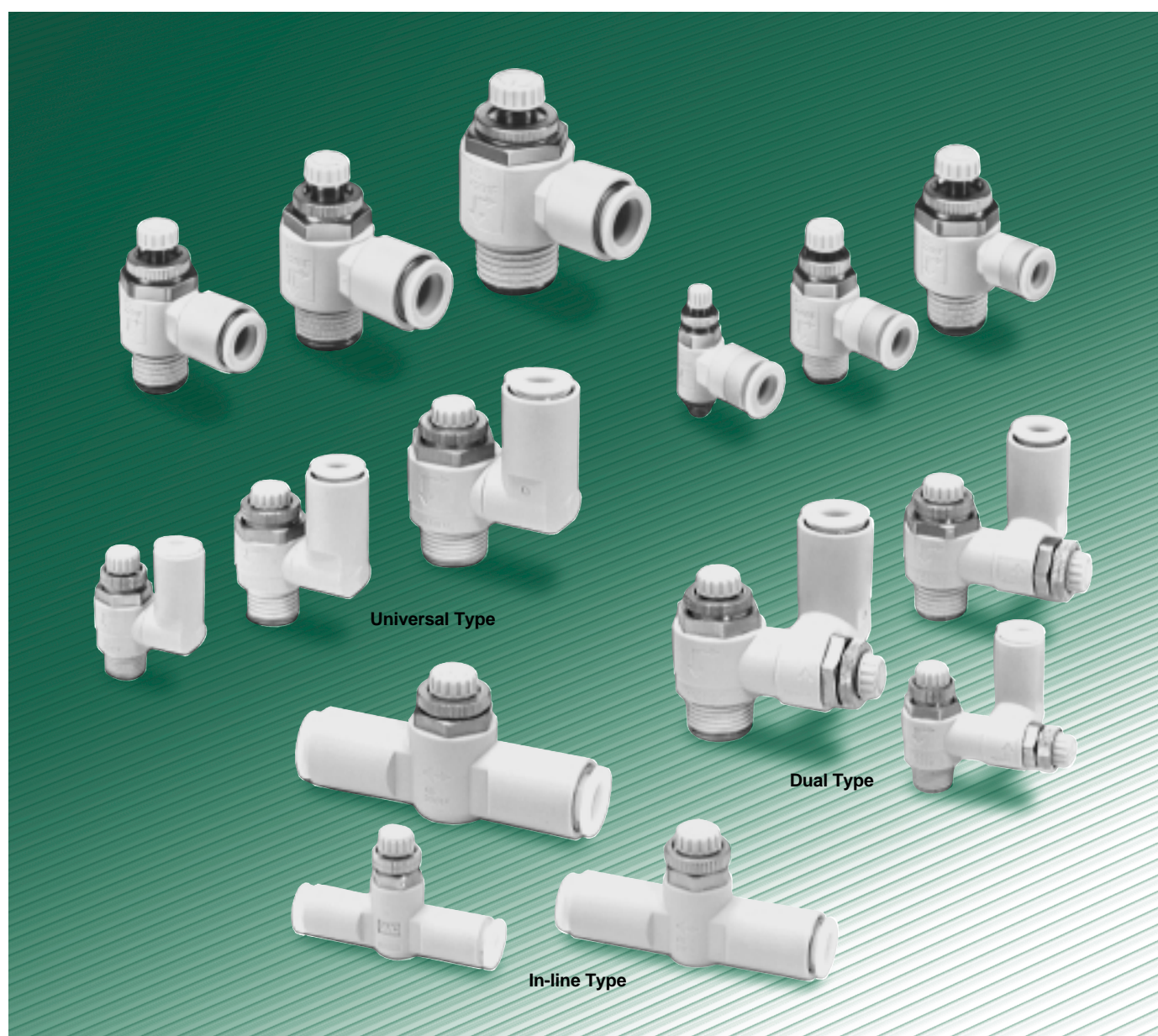


Speed Controller with One-touch Fitting
Stainless Steel Series
Series AS-FG/ASD-FG



In-line, universal and dual types now available.

Speed Controller with One-touch Fitting Stainless Steel Series

Series **AS-FG/ASD-FG**

Stainless steel specification for use in corrosive environments

SUS303 used for metal parts

Suitable for use on CRT lines where copper ions can cause damage, for washing of food processing equipment where there is exposure to water and salt water, etc., and in clean rooms where dust from discoloration and rusting of copper materials is unacceptable.

Light colors to match equipment





White resin parts are used for bodies and release buttons.

Threads with and without sealant are available as standard

Applicable tubing: Inch sizes standardized

Inch sizes are now available for all models.

Stainless Steel Series Speed Controllers

	Speed controller with One-touch fitting	Port threads	Connecting tube	Page
AS-FG	Elbow type 	R(PT)	Metric size	P.1
		New NPT	Inch size	
	New Universal type 	R(PT)	Metric size	P.1
		NPT	Inch size	
	New In-line type 	—	Metric size	P.7
			Inch size	
ASD-FG	New Universal type 	R(PT)	Metric size	P.10
		NPT	Inch size	

Speed Controller with One-touch Fitting Stainless Steel Series

Elbow Type/Universal Type

Series AS-FG

Models

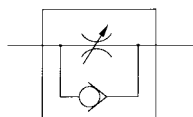


Elbow type



Universal type

JIS symbol



Flow direction symbols on body

	Meter-out type	Meter-in type
Symbol		
JIS symbol		

Elbow type	Universal type	Port size	Applicable tube outside diameter												Applicable cylinder bore size (mm)
			Metric size						Inch size						
			3.2	4	6	8	10	12	1/8"	5/32"	3/16"	1/4"	5/16"	3/8"	
AS12□1FG-M5	AS13□1FG-M5	M5 x 0.8	●	●	●										6, 10, 16, 20
AS22□1FG-01	AS23□1FG-01	R(PT) 1/8	●	●	●	●	●*								20, 25, 32
AS22□1FG-02	AS23□1FG-02	R(PT) 1/4		●	●	●	●								20, 25, 32, 40
AS32□1FG-02	AS33□1FG-02	R(PT) 1/4			●	●	●	●							40, 50, 63
AS32□1FG-03	AS33□1FG-03	R(PT) 3/8			●	●	●	●							40, 50, 63
AS42□1FG-04	AS43□1FG-04	R(PT) 1/2					●	●							63, 80, 100
AS12□1FG-U10/32	AS13□1FG-U10/32	10-32UNF							●	●	●	●			6, 10, 16, 20
AS22□1FG-N01	AS23□1FG-N01	NPT1/8							●	●	●	●	●		20, 25, 32
AS22□1FG-N02	AS23□1FG-N02	NPT1/4								●	●	●	●	●	20, 25, 32, 40
AS32□1FG-N02	AS33□1FG-N02	NPT1/4									●	●	●		40, 50, 63
AS32□1FG-N03	AS33□1FG-N03	NPT3/8									●	●	●		40, 50, 63
AS42□1FG-N04	AS43□1FG-N04	NPT1/2											●	●	63, 80, 100

Note 1) The meter-out and meter-in types can be visually determined by the flow direction symbol on the resin body.

Note 2) * Elbow type only

Specifications

Proof pressure	1.5MPa
Maximum operating pressure	1MPa
Minimum operating pressure	0.1MPa
Ambient & fluid temperature	-5 to 60°C (with no freezing)
Number of needle revolutions	10 revolutions (8 revolutions ^{Note 1)})
Applicable tube material ^{Note 2)}	Nylon, Soft nylon, Polyurethane, Soft polyurethane

Note 1) For types AS12□1FG and AS13□1FG

Note 2) Use caution regarding the maximum operating pressure with soft nylon, polyurethane and soft polyurethane.

(For details, refer to CAT.E501-B "Air Fittings and Tubing" pages 143 through 145.)

Flow Rate and Effective Area

Model		AS12□1FG AS13□1FG	AS22□1FG-□01 AS23□1FG-□01	AS22□1FG-□02 AS23□1FG-□02			AS32□1FG AS33□1FG			AS42□1FG AS43□1FG			
Tube O.D.	Metric size	ø3.2 ø4 ø6	ø3.2 ø4 ø8 ø10	ø6	ø4	ø6	ø8 ø10	ø6	ø8	ø10 ø12	ø10	ø12	
	Inch size	ø1/8" ø5/32" ø3/16" ø1/4"	ø1/8" ø5/32" ø1/4" ø5/16"	ø3/16" ø1/4" ø5/16"	ø5/32"	ø3/16"	ø1/4" ø5/16" ø3/8"	ø1/4"	ø5/16"	ø3/8"	ø3/8"	ø1/2"	
	Controlled (Free) flow	Flow rate /min (ANR)	100	180	230	260	390	460	660	790	920	1580	1710
		Effective area mm²	1.5	2.7	3.5	4	6	7	10	12	14	12	26

Note) The flow rate values are at a pressure of 0.5MPa and temperature of 20°C.

How to Order

AS 2 3 1 1 FG - 01 06

Body size

1	M5 standard
2	1/8, 1/4 standard
3	3/8 standard
4	1/2 standard

Type

2	Elbow
3	Universal

Control method

0	Meter-out
1	Meter-in

With One-touch fittings

Stainless steel specification (SUS303)

Thread type

Nil	Metric thread (M5)
	Unified thread (10-32UNF)
	R(PT)
N	NPT

Option

Nil	None
S	With sealant *

* M5 and U10/32 are not available with sealant.

Applicable tube outside diameter

Metric size

23	ø3.2 *
04	ø4
06	ø6
08	ø8
10	ø10
12	ø12

* Use a ø1/8" tube.

Inch size

01	ø1/8"
03	ø5/32"
05	ø3/16"
07	ø1/4"
09	ø5/16"
11	ø3/8"
13	ø1/2"

Port size

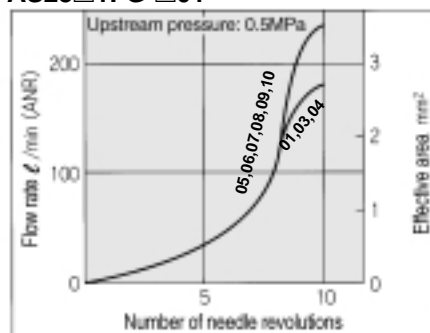
M5	M5 x 0.8
U10/32	10-32UNF
01	1/8
02	1/4
03	3/8
04	1/2

Needle Valve/Flow Rate Characteristics

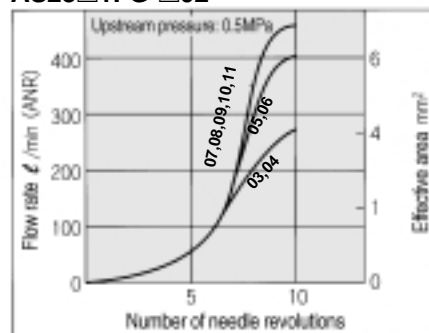
AS12□1FG
AS13□1FG



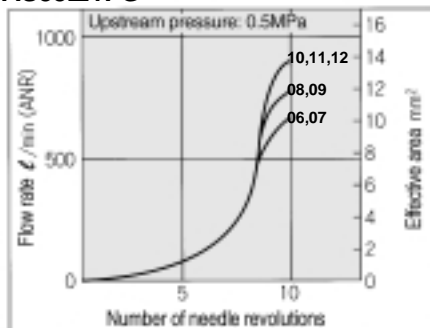
AS22□1FG-□01
AS23□1FG-□01



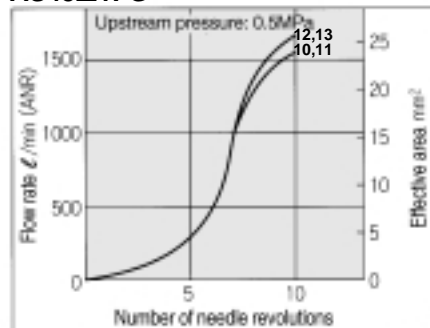
AS22□1FG-□02
AS23□1FG-□02



AS32□1FG
AS33□1FG



AS42□1FG
AS43□1FG



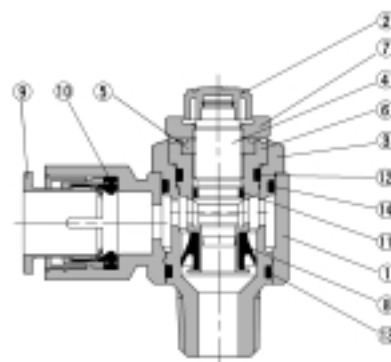
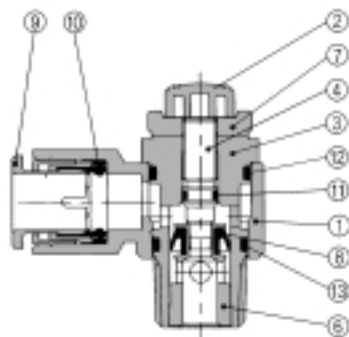
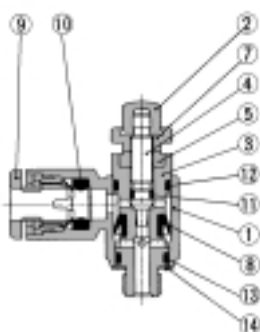
Construction/Elbow Type

Meter-out type

M5 type

U10/32 type

AS3201FG-02

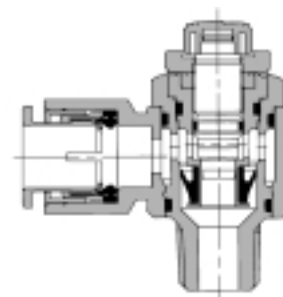
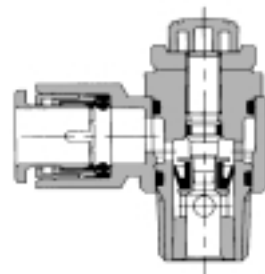
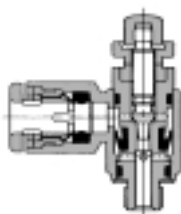


Meter-in type

M5 type

U10/32 type

AS3211FG-02



Parts list

No.	Description	Material	Note
1	Body A	PBT	
2	Knob	PBT	
3	Body B	SUS303	
4	Needle	SUS303	
5	Needle guide	SUS303	
6	Seat ring	SUS303	
7	Lock nut	SUS303	
8	U seal	NBR	
9	Cassette	POM, Stainless steel	
10	Seal	NBR	
11	O-ring	NBR	
12	O-ring	NBR	
13	O-ring	NBR	
14	O-ring	NBR	
15	Gasket	NBR/SUS304	M5 type only

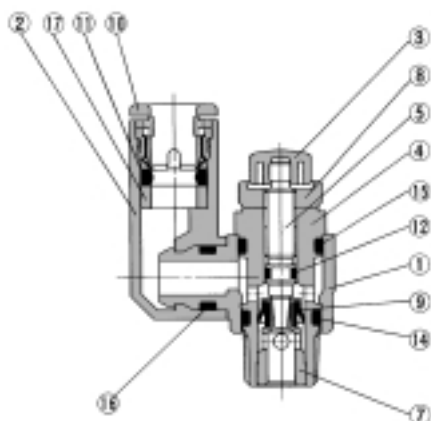
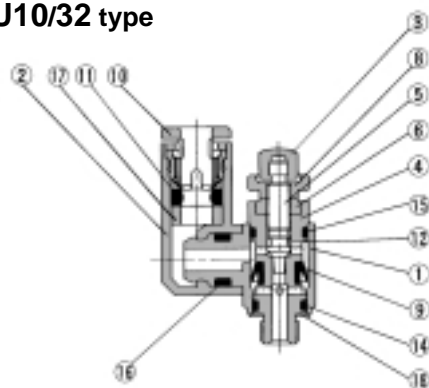
Series AS-FG

Construction/Universal Type

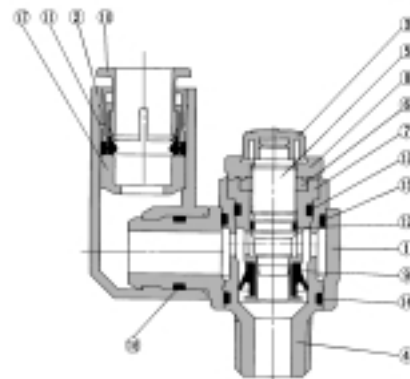
Meter-out type

M5 type

U10/32 type



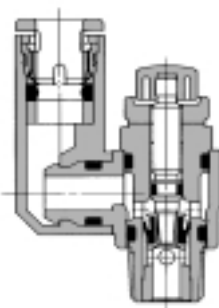
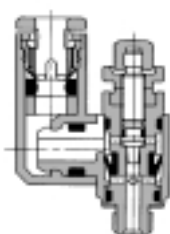
AS3301FG-02



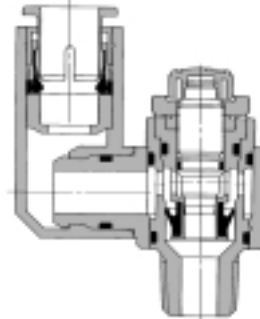
Meter-in type

M5 type

U10/32 type



AS3311FG-02

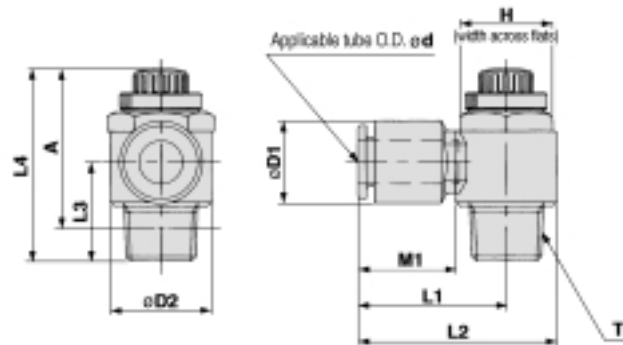


Parts List

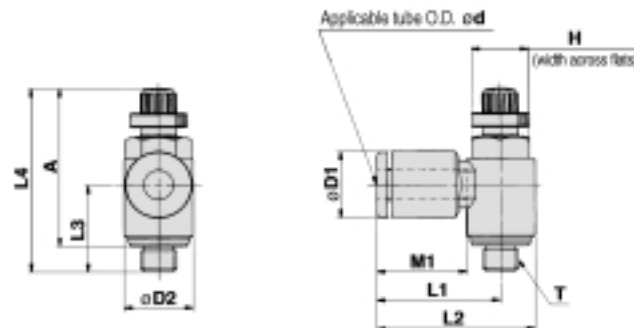
No.	Description	Material	Note
1	Body A	PBT	
2	Elbow body	PBT	
3	Knob	PBT	
4	Body B	SUS303	
5	Needle	SUS303	
6	Needle guide	SUS303	
7	Seat ring	SUS303	
8	Lock nut	SUS303	
9	U seal	NBR	
10	Cassette	POM, Stainless steel	
11	Seal	NBR	
12	O-ring	NBR	
13	O-ring	NBR	
14	O-ring	NBR	
15	O-ring	NBR	
16	O-ring	NBR	
17	Spacer	POM (Note 1)	
18	Gasket	NBR, Stainless steel	

Note 1) $\phi 3/16"$, $\phi 3/8"$ and $\phi 1/2"$ are SUS303.

Dimensions/Elbow Type



**M5 type
U10/32 type**



Metric size

Model	d	T	H	D1	D2	L1	L2	L3	L4		A *		M1	Weight g	
									Max.	Min.	Max.	Min.			
AS12□1FG-M5-23	3.2	M5 x 0.8	8	8.4	9.6	17.3	22.1	12.3	28.6	25.8	25	22.2	12.7	7	
AS22□1FG-01-23	3.2	R(PT)1/8	12	9.3	14.2	20.4	27.5	14.3	36.1	31.1	32.1	27.1	12.7	16	
AS12□1FG-M5-04	4	M5 x 0.8	8	9.3	9.6	17.3	22.1	12.3	28.6	25.8	25	22.2	12.7	7	
AS12□1FG-M5-06	6			11.6		18.1	22.9	11.7					13.5		
AS22□1FG-01-04	4	R(PT) 1/8	12	9.3	14.2	20.4	27.5	14.3	36.1	31.1	32.1	27.1	12.7	17	
AS22□1FG-01-06	6			11.6		20.4	27.5						13.5		
AS22□1FG-01-08	8			15.2		25.3	32.4						18.5		
AS22□1FG-01-10	10			18.5		33.1	40.2						15		21
AS22□1FG-02-04	4	R(PT) 1/4	17	10.4	18.5	25.2	34.4	18.2	40.4	35.4	34.4	29.4	16	32	
AS22□1FG-02-06	6			12.8		25.2	34.4						17		
AS22□1FG-02-08	8			15.2		27.2	36.4						18.5		34
AS22□1FG-02-10	10			18.5		33.9	43.2						20		21
AS32□1FG-02-06	6	R(PT) 1/4	19	12.8	23	27.8	39.3	21.8	48.8	43.8	42.8	37.8	17	60	
AS32□1FG-02-08	8			15.2		29.5	41						18.5		63
AS32□1FG-02-10	10			18.5		31.8	43.3						21		67
AS32□1FG-02-12	12			20.9		32.8	44.3						22		69
AS32□1FG-03-06	6	R(PT) 3/8	19	12.8	23	27.8	39.3	20.9	46.5	41.5	40.2	35.2	17	55	
AS32□1FG-03-08	8			15.2		29.5	41						18.5		57
AS32□1FG-03-10	10			18.5		31.8	43.3						21		59
AS32□1FG-03-12	12			20.9		32.8	44.3						22		61
AS42□1FG-04-10	10	R(PT) 1/2	24	18.5	28.6	33.6	47.9	25.4	57.6	50.1	49.6	42.1	21	100	
AS42□1FG-04-12	12			20.9		34.6	48.9						22		101

* Reference dimensions for threads after installation.

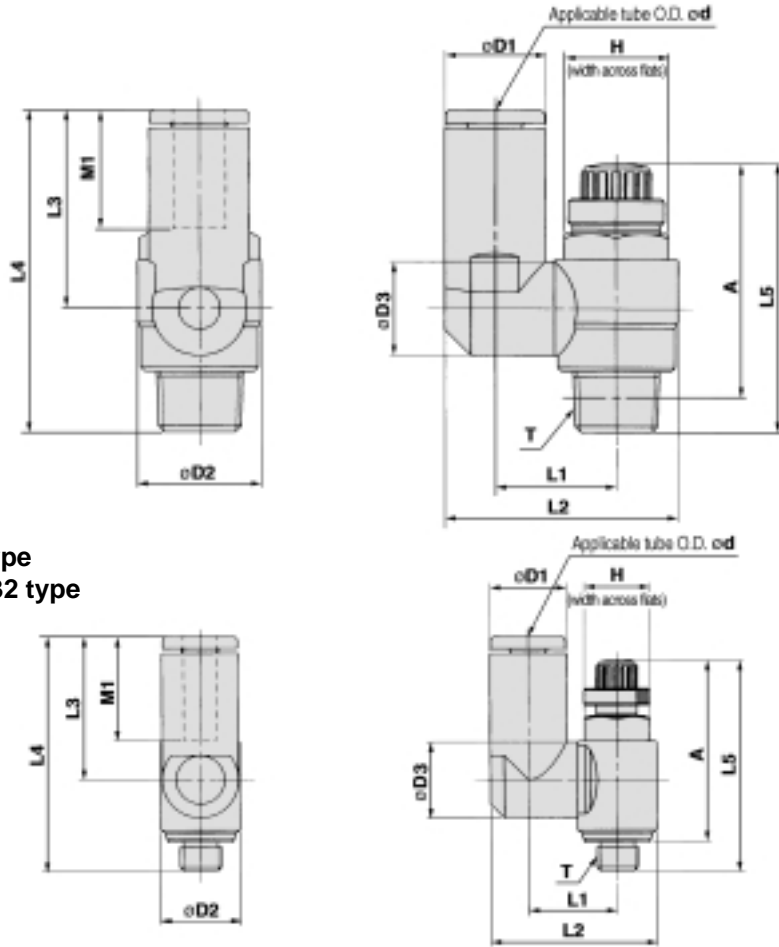
Inch size

Model	d	T	H	D1	D2	L1	L2	L3	L4		A *		M1	Weight g				
									Max.	Min.	Max.	Min.						
AS12□1FG-U10/32-01	1/8"	10-32UNF	8	8.4	9.6	17.3	22.1	12.3	28.6	25.8	25	22.2	12.7	7				
AS12□1FG-U10/32-03	5/32"			9.3		21.3	26.1	11.7					16.5					
AS12□1FG-U10/32-05	3/16"			11.4		18.3	23.1								13.5			
AS12□1FG-U10/32-07	1/4"			12		18.3	23.1											
AS22□1FG-N01-01	1/8"	NPT 1/8	12.7	9.3	14.2	20.4	27.5	14.3	36.1	31.1	32.1	27.1	12.7	16				
AS22□1FG-N01-03	5/32"			11.4		23.1	30.2						18.5					
AS22□1FG-N01-05	3/16"			13.2		23.9	31							21				
AS22□1FG-N01-07	1/4"			15.2		25.3	32.4								15	19		
AS22□1FG-N01-09	5/16"	NPT 1/4	17.5	15.2	18.5	25.3	32.4	20	40.4	35.4	34.4	29.4	21	21				
AS22□1FG-N02-03	5/32"			10.4		25.2	34.4						17					
AS22□1FG-N02-05	3/16"			11.4		24.9	34.2							18.2	16			
AS22□1FG-N02-07	1/4"			13.2		25.2	34.5									20	40.4	35.4
AS22□1FG-N02-09	5/16"	15.2	27.2	36.4	21													
AS22□1FG-N02-11	3/8"	17.9	33.9	43.2		21.8	48.8	43.8	42.8	37.8	18.5	63						
AS32□1FG-N02-07	1/4"	13.2	27.8	39.3	21.8								48.8	43.8	42.8	37.8	17	60
AS32□1FG-N02-09	5/16"	15.2	29.5	41														
AS32□1FG-N02-11	3/8"	17.9	31.8	43.3		21.8	48.8	43.8	42.8	37.8	18.5	63						
AS32□1FG-N03-07	1/4"	13.2	27.8	39.3	21.8								48.8	43.8	42.8	37.8	17	60
AS32□1FG-N03-09	5/16"	15.2	29.5	41														
AS32□1FG-N03-11	3/8"	17.9	31.8	43.3		21.8	48.8	43.8	42.8	37.8	17	60						
AS32□1FG-N04-11	3/8"	17.9	33.6	47.9	25.4								57.6	50.1	49.6	42.1	22	101
AS42□1FG-N04-13	1/2"	21.7	35.2	49.5														

* Reference dimensions for 10-32UNF and NPT threads after installation.

Series AS-FG

Dimensions/Universal Type



For M5 type
For U10/32 type

Metric size

Model	d	T	H	D1	D2	D3	L1	L2	L3	L4	L5		A *		M1	Weight g
											Max.	Min.	Max.	Min.		
AS13□1FG-M5-23	3.2	M5 x 0.8	8	8.4	9.6	9.3	10.8	19.8	17.5	28.7	28.6	25.8	25	22.2	12.7	7
AS13□1FG-M5-04	4			9.3				20.3	17.5	28.7	28.6	25.8	25	22.2	12.7	7
AS13□1FG-M5-06	6			11.6				21.4	20.6	31.8	28.6	25.8	25	22.2	13.5	17
AS23□1FG-01-23	3.2	R(PT) 1/8	12	8.4	14.2	9.3	13.1	24.4	17.5	31.8	36.1	31.1	32.1	27.1	12.7	17
AS23□1FG-01-04	4			9.3				24.9	17.5	31.8	36.1	31.1	32.1	27.1	12.7	17
AS23□1FG-01-06	6			11.6				26.9	22.9	37.2	36.1	31.1	32.1	27.1	13.5	21
AS23□1FG-01-08	8	R(PT) 1/4	17	15.2	18.5	12.9	16.2	30.9	28.2	41.7	40.4	35.4	34.4	29.4	18.5	36
AS23□1FG-02-04	4			10.4				30.6	21.9	40.1	40.4	35.4	34.4	29.4	16	32
AS23□1FG-02-06	6			12.8				34	25.2	42.6	40.4	35.4	34.4	29.4	17	33
AS23□1FG-02-08	8	R(PT) 1/4	17	15.2	18.5	12.9	16.2	35.2	28.2	45.6	40.4	35.4	34.4	29.4	18.5	36
AS23□1FG-02-10	10			18.5				38.7	31	48.4	40.4	35.4	34.4	29.4	21	40
AS33□1FG-02-06	6			12.8				38.5	25.2	47	48.8	43.8	42.8	37.8	17	60
AS33□1FG-02-08	8	R(PT) 1/4	19	15.2	23	12.9	20.6	39.7	28.2	50	48.8	43.8	42.8	37.8	18.5	63
AS33□1FG-02-10	10			18.5				43.7	32.6	54.4	48.8	43.8	42.8	37.8	21	67
AS33□1FG-02-12	12			20.9				44.9	34.4	56.2	48.8	43.8	42.8	37.8	22	69
AS33□1FG-03-06	6	R(PT) 3/8	19	12.8	23	12.9	20.6	38.5	25.2	46.1	46.5	41.5	40	35	17	56
AS33□1FG-03-08	8			15.2				39.7	28.2	49.1	46.5	41.5	40	35	18.5	59
AS33□1FG-03-10	10			18.5				43.7	32.6	53.5	46.5	41.5	40	35	21	63
AS33□1FG-03-12	12	R(PT) 1/2	24	20.9	28.6	16.2	23	44.9	34.4	55.3	57.6	50.1	49.6	42.1	22	65
AS43□1FG-04-10	10			18.5				49.4	32.6	58	57.6	50.1	49.6	42.1	21	104
AS43□1FG-04-12	12			20.9				52	36.3	61.7	57.6	50.1	49.6	42.1	22	105

* Reference dimensions for M5 x 0.8 and R(PT) threads after installation.

Inch size

Model	d	T	H	D1	D2	D3	L1	L2	L3	L4	L5		A *		M1	Weight g
											Max.	Min.	Max.	Min.		
AS13□1FG-U10/32-01	1/8"	10-32UNF	8	8.4	9.6	9.3	10.8	19.8	17.5	28.7	28.6	25.8	25	22.2	12.7	7
AS13□1FG-U10/32-03	5/32"			9.3				20.3	17.5	28.7	28.6	25.8	25	22.2	12.7	7
AS13□1FG-U10/32-05	3/16"			11.4				21.3	23.3	34.5	28.6	25.8	25	22.2	16.5	17
AS13□1FG-U10/32-07	1/4"	NPT	12.7	12	14	10.9	14	21.6	20.7	31.9	36.1	31.1	32.1	27.1	13.7	8
AS23□1FG-N01-01	1/8"			8.4				24.4	17.5	31.8	36.1	31.1	32.1	27.1	12.7	17
AS23□1FG-N01-03	5/32"			9.3				24.9	17.5	31.8	36.1	31.1	32.1	27.1	12.7	17
AS23□1FG-N01-05	3/16"	NPT	1/8	11.4	14	10.9	14	26.8	23.9	37.2	40.4	35.4	34.4	29.4	16.5	19
AS23□1FG-N01-07	1/4"			13.2				29.9	25.6	41.7	40.4	35.4	34.4	29.4	18.5	21
AS23□1FG-N01-09	5/16"			15.2				30.9	28.2	41.7	40.4	35.4	34.4	29.4	21	21
AS23□1FG-N02-03	5/32"	NPT	1/4	10.4	10.9	16.2	12.9	30.6	21.9	40.1	40.4	35.4	34.4	29.4	16	32
AS23□1FG-N02-05	3/16"			11.4				31.1	23.9	42.6	40.4	35.4	34.4	29.4	17	33
AS23□1FG-N02-07	1/4"			13.2				34.2	25.6	45.6	40.4	35.4	34.4	29.4	18.5	36
AS23□1FG-N02-09	5/16"	NPT	3/8	15.2	17.9	12.9	20.6	35.2	28.2	48.4	48.8	43.8	42.8	37.8	21	39
AS23□1FG-N02-11	3/8"			17.9				38.7	31	47	48.8	43.8	42.8	37.8	21	40
AS33□1FG-N02-07	1/4"			13.2	17.9	12.9	20.6	38.7	25.6	50	48.8	43.8	42.8	37.8	17	60
AS33□1FG-N02-09	5/16"	NPT	1/4	15.2				39.7	28.2	54.4	48.8	43.8	42.8	37.8	18.5	63
AS33□1FG-N02-11	3/8"			17.9				43.7	32.6	56.2	48.8	43.8	42.8	37.8	21	69
AS33□1FG-N03-07	1/4"	NPT	1/2	13.2	17.9	12.9	20.6	38.7	25.6	46.1	46.5	41.5	40.2	35.2	17	56
AS33□1FG-N03-09	5/16"			15.2				39.7	28.2	49.1	46.5	41.5	40.2	35.2	18.5	59
AS33□1FG-N03-11	3/8"			17.9				43.7	32.6	53.5	46.5	41.5	40.2	35.2	21	65
AS43□1FG-N04-11	3/8"	NPT	1/2	17.9	23.8	16.2	25.8	49.4	32.6	55.3	57.6	50.1	49.6	42.1	21	104
AS43□1FG-N04-13	1/2"			21.7				52	36.3	58	57.6	50.1	49.6	42.1	22	106

* Reference dimensions for 10-32UNF and NPT threads after installation.

Speed Controller with One-touch Fitting Stainless Steel Series

In-line Type

Series AS-FG

Models



Model	Applicable tube outside diameter													Applicable cylinder bore size (mm)
	Metric size						Inch size							
	3.2	4	6	8	10	12	1/8"	5/32"	3/16"	1/4"	5/16"	3/8"	1/2"	
AS1001FG	●	●	●				●	●	●	●				6, 10, 16, 20
AS2001FG		●	●					●	●	●				20, 25, 32
AS2051FG			●	●					●	●	●			20, 25, 32, 40
AS3001FG			●	●	●	●				●	●	●		40, 50, 63
AS4001FG					●	●						●	●	63, 80, 100

Specifications

Proof pressure	1.5MPa
Maximum operating pressure	1MPa
Minimum operating pressure	0.1MPa
Ambient and fluid temperature	-5 to 60°C (with no freezing)
Number of needle revolutions	10 revolutions (8 revolutions ^{Note 1)})
Applicable tube material ^{Note 2)}	Nylon, Soft nylon, Polyurethane, Soft polyurethane

Note 1) For AS1001FG type

Note 2) Use caution regarding the maximum operating pressure with soft nylon, polyurethane and soft polyurethane.
(For details, refer to CAT.E501-B "Air Fittings and Tubing" pages 143 through 145.)

Flow Rate and Effective Area



Model		AS1001FG	AS2001FG		AS2051FG		AS3001FG			AS4001FG	
Tube O.D.	Metric size	ø3.2	ø4	ø6	ø6	ø8	ø6	ø8	ø10	ø10	ø12
		ø4							ø12		
		ø6									
Tube O.D.	Inch size	ø1/8"	ø5/32"	ø3/16"	ø3/16"	ø1/4"	ø1/4"	ø5/16"	ø3/8"	ø3/8"	ø1/2"
		ø5/32"		ø1/4"		ø5/16"					
		ø3/16"									
Controlled (Free) flow	Flow rate /min (ANR)	100	130	230	290	460	420	660	920	1050	1390
	Effective area mm ²	1.5	2	3.5	4.5	7	6.5	10	14	16	21

Note) Flow rate values are at a pressure of 0.5MPa and a temperature of 20°C.

How to Order

AS 200 1 F G - 06

Body size

100	M5 standard
200	1/8 standard
205	1/4 standard
300	3/8 standard
400	1/2 standard

With One-touch fitting

Stainless steel specification (SUS303)

Applicable tube outside diameter
Metric size

23	ø3.2 *
04	ø4
06	ø6
08	ø8
10	ø10
12	ø12

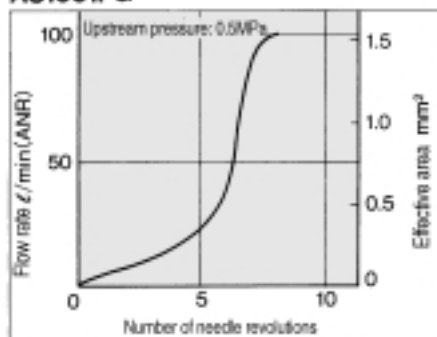
* Use a ø1/8" tube.

Inch size

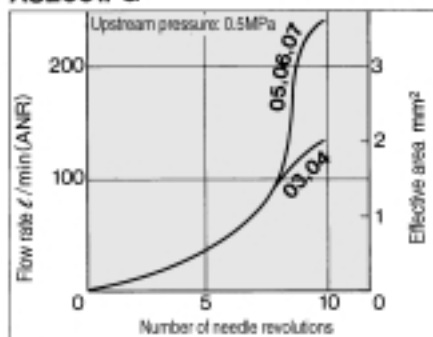
01	ø1/8"
03	ø5/32"
05	ø3/16"
07	ø1/4"
09	ø5/16"
11	ø3/8"
13	ø1/2"

Needle Valve/Flow Rate Characteristics

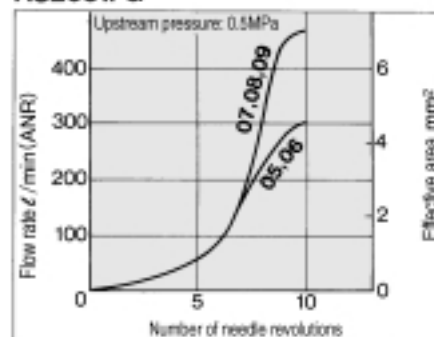
AS1001FG



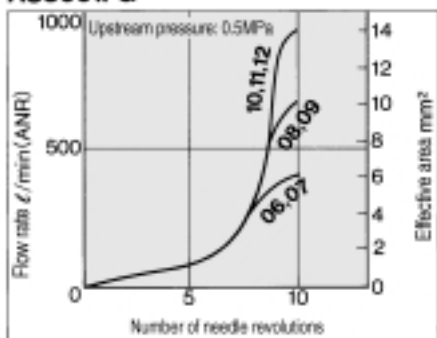
AS2001FG



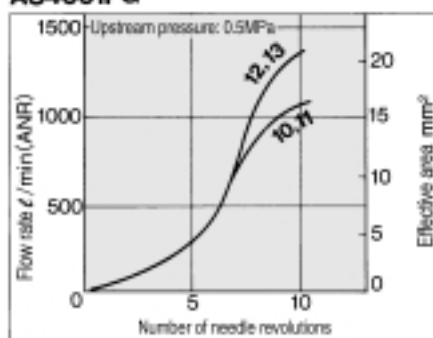
AS2051FG



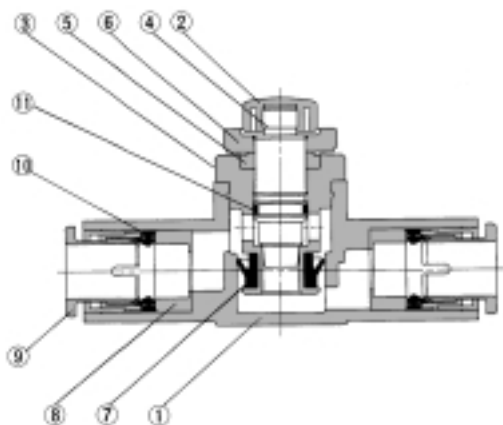
AS3001FG



AS4001FG



Construction

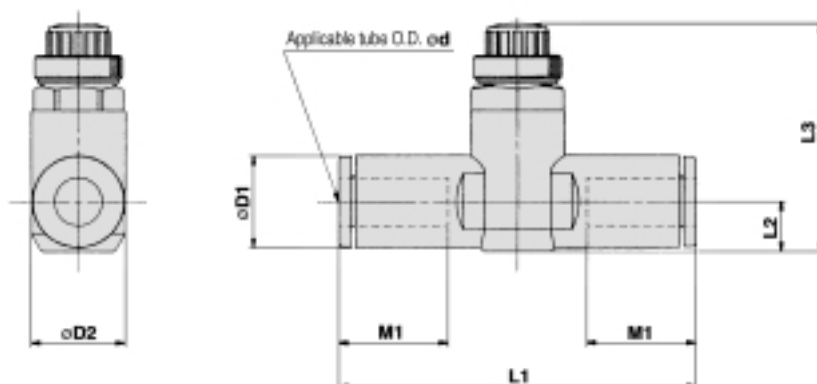


Parts list

No.	Description	Material	Note
1	Body A	PBT	
2	Knob	PBT	
3	Body B	SUS303	
4	Needle	SUS303	
5	Needle guide	SUS303	
6	Lock nut	SUS303	
7	U seal	NBR	
8	Spacer	POM ^{Note 1)}	
9	Cassette	POM, Stainless steel	
10	Seal	NBR	
11	O-ring	NBR	

Note) $\phi 3/16"$, $\phi 3/8"$ and $\phi 1/2"$ are SUS303.

Dimensions



Metric size

Model	d	D1	D2	L1	L2	L3		M1	Weight g
						Max.	Min.		
AS1001FG-23	3.2	8.4	10	38	4.5	23.5	20.7	12.7	6
AS1001FG-04	4	9.3		39.2	5.2	24.2	21.4		7
AS1001FG-06	6	11.6		40.7	6.2	25.2	22.4		8
AS2001FG-04	4	9.3	11.8	40.7	5.2	32.6	27.6	12.7	12
AS2001FG-06	6	11.6		44.8	6.3	33.7	28.7		13
AS2051FG-06	6	12.8		53.2	6.7	35.2	30.2		26
AS2051FG-08	8	15.2	14.8	59.8	8.1	32.6	27.6	18	31
AS3001FG-06	6	12.8		59	7.4	38.3	33.3		18
AS3001FG-08	8	15.2		64.4	8.2	39.1	34.1		21
AS3001FG-10	10	18.5	19.8	71.6	9.8	40.6	35.6	21	32
AS3001FG-12	12	20.9		76	11	41.8	36.8		33
AS4001FG-10	10	18.5		82	11.3	51.1	43.6	21	36
AS4001FG-12	12	20.9				52.1	44.6		40

Inch size

Model	d	D1	D2	L1	L2	L3		M1	Weight g	
						Max.	Min.			
AS1001FG-01	1/8"	8.4	10	38	4.5	23.5	20.7	12.7	6	
AS1001FG-03	5/32"	9.3		39.2	5.2	24.2	21.4		7	
AS1001FG-05	3/16"	11.4		48.7	6.2	25.2	22.4		16.5	8
AS1001FG-07	1/4"	12		40.7					13.7	9
AS2001FG-03	5/32"	9.3	11.8	40.7	5.2	32.6	27.6	12.7	12	
AS2001FG-05	3/16"	11.4		50	6.2	33.6	28.6	16.5	18	
AS2001FG-07	1/4"	13.2		52.2	7.1	34.5	29.5	17	21	
AS2051FG-05	3/16"	11.4	14.8	52.2	6.2	34.6	29.6	16.5	24	
AS2051FG-07	1/4"	13.2		54.4	7.1	35.5	30.5	17	26	
AS2051FG-09	5/16"	15.2		59.8	8.1	32.6	27.6	18	31	
AS3001FG-07	1/4"	13.2	19.8	59	7.4	38.3	33.3	17	42	
AS3001FG-09	5/16"	15.2		64.4	8.2	39.1	34.1	18	46	
AS3001FG-11	3/8"	17.9		70.8	9.5	40.3	35.3	21	53	
AS4001FG-11	3/8"	17.9	26.5	76.9	10.3	51	43.5	21	97	
AS4001FG-13	1/2"	21.7		83.1	11.6	52.4	44.9	22	106	

Dual Speed Controller with One-touch Fitting Stainless Steel Series

Series ASD-FG

Two flow control valves and check valves have been integrated.

Pop out prevention and speed control of single acting cylinder.

Stable speed control can be achieved even with load fluctuations.

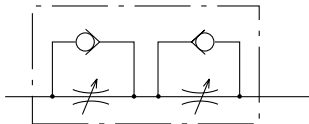


Models

Model	Port size	Applicable tube outside diameter										
		Metric size					Inch size					
		4	6	8	10	12	1/8"	5/32"	3/16"	1/4"	5/16"	3/8"
ASD230FG-M5	M5 x 0.8	●	●									
ASD330FG-01	R(PT) 1/8		●	●								
ASD430FG-02	R(PT) 1/4		●	●	●							
ASD530FG-02	R(PT) 1/4		●	●	●	●						
ASD530FG-03	R(PT) 3/8		●	●	●	●						
ASD630FG-04	R(PT) 1/2				●	●						
ASD230FG-U10/32	10-32 UNF						●	●	●	●		
ASD330FG-N01	NPT 1/8								●	●	●	
ASD430FG-N02	NPT 1/4									●	●	●
ASD530FG-N02	NPT 1/4									●	●	●
ASD530FG-N03	NPT 3/8									●	●	●
ASD630FG-N04	NPT 1/2											●

Specifications

JIS symbol



Flow direction symbols on body

	Meter-out type	Meter-in type
Symbol		
JIS symbol		

Proof pressure	1.5MPa
Maximum operating pressure	1MPa
Minimum operating pressure	0.1MPa
Ambient & fluid temperature	-5 to 60°C (with no freezing)
Number of needle revolutions	10 revolutions (8 revolutions ^{Note 1)})
Applicable tube material ^{Note 2)}	Nylon, Soft nylon, Polyurethane, Soft polyurethane

Note 1) For ASD230FG type

Note 2) Use caution regarding the maximum operating pressure with soft nylon, polyurethane and soft polyurethane.
(For details, refer to CAT.E501-B "Air Fittings and Tubing" pages 143 through 145.)

Flow Rate and Effective Area

Model		ASD230FG	ASD330FG	ASD430FG		ASD530FG			ASD630FG	
Tube O.D.	Metric size	ø4, ø6	ø6, ø8	ø6	ø8, ø10	ø6	ø8	ø10, ø12	ø10	ø12
	Inch size	ø1/8" ø5/32"	ø3/16" ø1/4"	—	ø1/4" ø5/16" ø3/8"	ø1/4"	ø5/16"	ø3/8"	—	ø3/8"
Controlled flow (Free)	Flow rate /min (ANR)	75	175	295	350	500	600	700	1200	1300
	Effective area mm ²	1.1	2.7	4.5	5.3	7.6	9.1	10.7	18.3	19.8

Note 1) Flow rate values are at a pressure of 0.5MPa and a temperature of 20°C.

How to Order

ASD 3 30FG - 01 06 S

Body size

2	M5 standard
3	1/8 standard
4	1/4 standard
5	3/8 standard
6	1/2 standard

Type

3	Universal
---	-----------

With One-touch fitting

Stainless steel specification
(SUS303)

Thread type

Nil	Metric threads (M5)
	Unified threads (10-32UNF)
	R(PT)
N	NPT

With sealant

* M5 and U10/32 are not available with sealant.

Applicable tube outside diameter

Metric size

04	ø4
06	ø6
08	ø8
10	ø10
12	ø12

Inch size

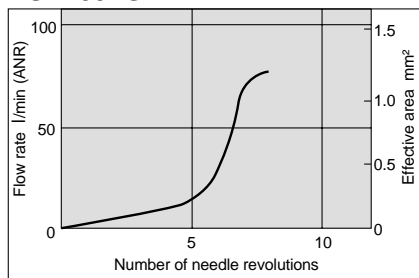
01	ø1/8"
03	ø5/32"
05	ø3/16"
07	ø1/4"
09	ø5/16"
11	ø3/8"

Port size

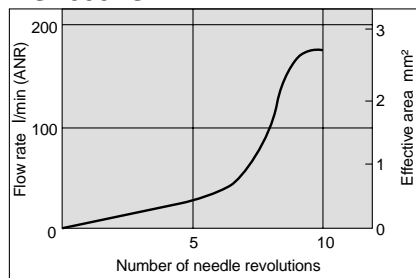
M5	M5 x 0.8
U10/32	10-32UNF
01	1/8
02	1/4
03	3/8
04	1/2

Needle Valve/Flow Rate Characteristics

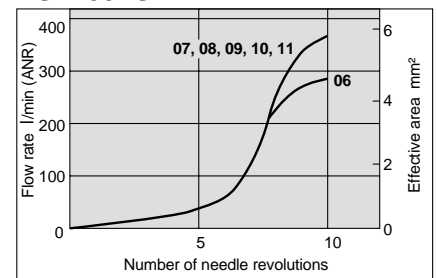
ASD230FG



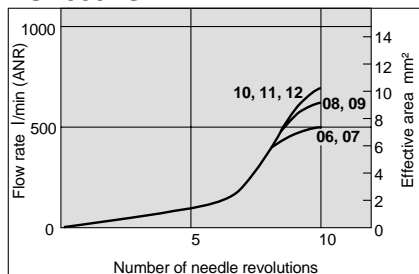
ASD330FG



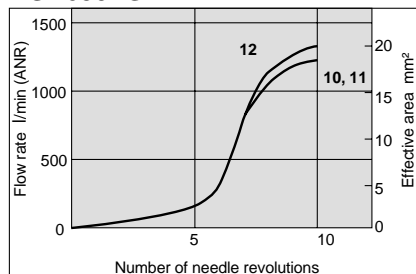
ASD430FG



ASD530FG



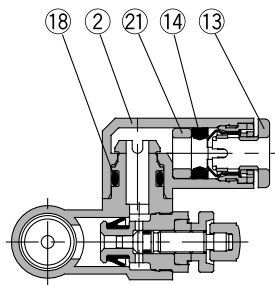
ASD630FG



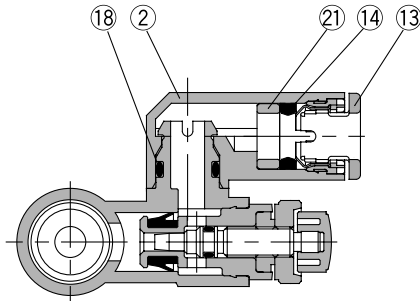
Series ASD-FG

Construction

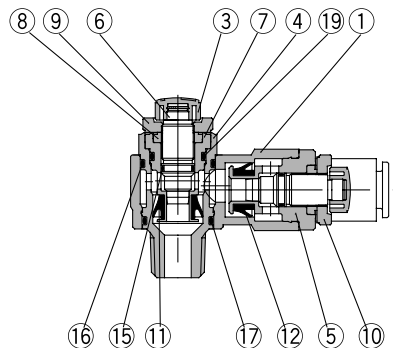
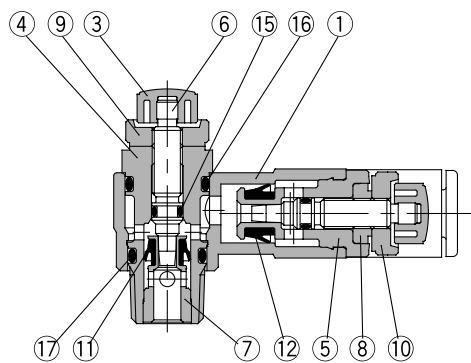
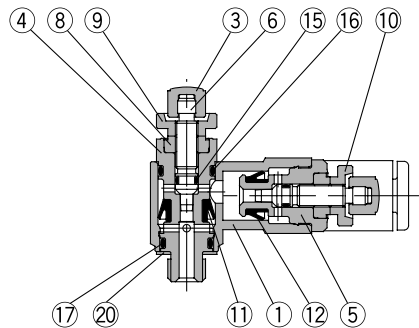
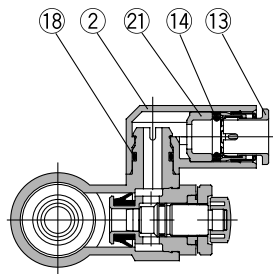
ASD230FG



ASD330FG/430FG
ASD530FG/630FG



ASD530FG-02



Parts list

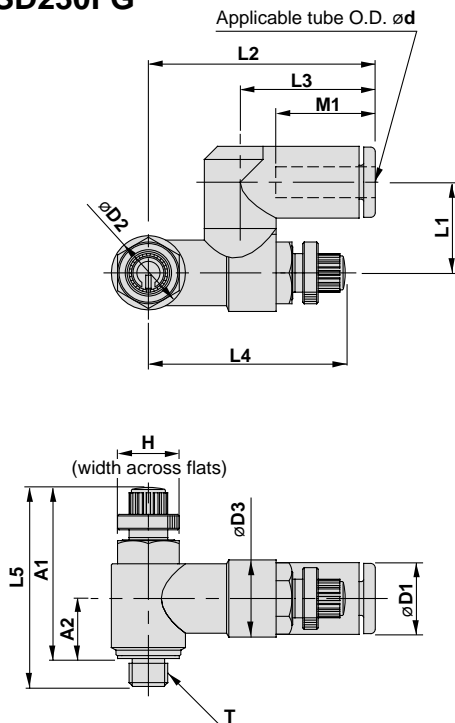
No.	Description	Material	Note
1	Body A	PBT	
2	Elbow body	PBT	
3	Knob	PBT	
4	Body B	SUS303	
5	Body B	SUS303	
6	Needle	SUS303	
7	Seat ring	SUS303	
8	Needle guide	SUS303	
9	Lock nut	SUS303	
10	Lock nut	SUS303	
11	U seal	NBR	

No.	Description	Material	Note
12	U seal	NBR	
13	Cassette	POM, Stainless steel	
14	Seal	NBR	
15	O-ring	NBR	
16	O-ring	NBR	
17	O-ring	NBR	
18	O-ring	NBR	
19	O-ring	NBR	
20	Gasket	NBR, Stainless steel	M5 type only
21	Spacer	POM ^{Note1)}	

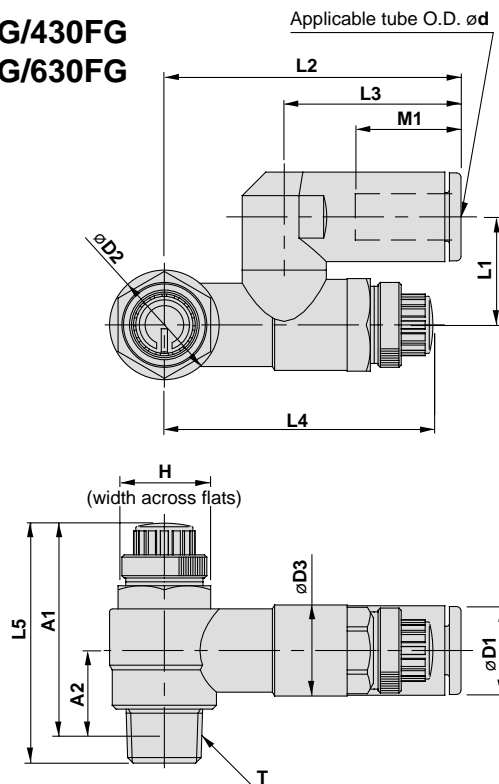
Note 1) $\varnothing 3/16"$, $\varnothing 3/8"$ and $\varnothing 1/2"$ are SUS303.

Dimensions/Metric Size

ASD230FG



**ASD330FG/430FG
ASD530FG/630FG**



Metric size

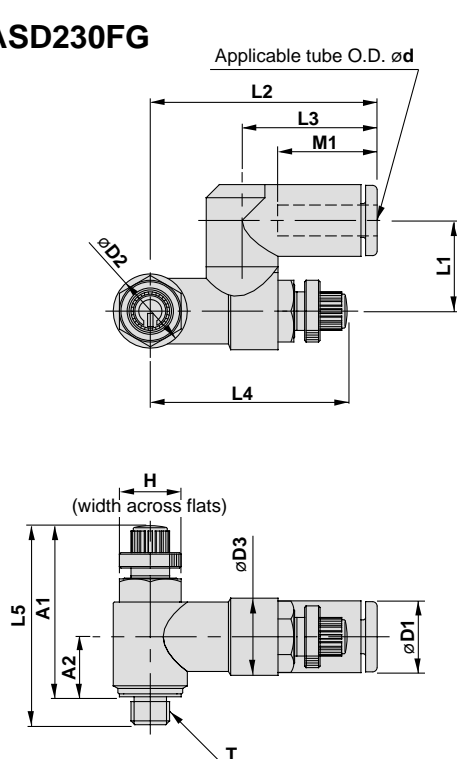
Model	d	T	H	D1	D2	D3	L1	L2	L3	L4		L5		A1 *		A2 *	M1
										Max.	Min.	Max.	Min.	Max.	Min.		
ASD230FG-M5-04	4	M5 x 0.8	8	9.3	9.6	10	11.7	29.4	17.5	28.3	25.5	28.6	25.8	25	22.2	7.8	12.9
ASD230FG-M5-06	6			11.6				32.5	20.6								13.7
ASD330FG-01-06S	6	R(PT) 1/8	12	11.6	14.2	11.8	14	38.5	22.9	39.6	34.6	36.1	31.1	32.1	27.1	10.6	13.7
ASD330FG-01-08S	8			15.2				44.8	28.2								18.5
ASD430FG-02-06S	6	R(PT) 1/4	17	12.8	18.5	15	18	43.5	25.2	41.7	36.7	40.4	35.4	34.4	29.4	11	17
ASD430FG-02-08S	8			15.2				46.5	28.2								18.5
ASD430FG-02-10S	10			18.5			19.7	49.3	31								21
ASD530FG-02-06S	6	R(PT) 1/4	19	12.8	23	19.8	20.3	48.3	25.2	46.9	41.9	48.8	43.8	42.8	37.8	15.4	17
ASD530FG-02-08S	8			15.2				51.3	28.2								18.5
ASD530FG-02-10S	10			18.5			23.1	54.1	32.6								21
ASD530FG-02-12S	12			20.9				55.9	34.4								22
ASD530FG-03-06S	6	R(PT) 3/8	19	12.8	23	19.8	20.3	48.3	25.2	46.9	41.9	48.8	43.8	40	35	14	17
ASD530FG-03-08S	8			15.2				51.3	28.2								18.5
ASD530FG-03-10S	10			18.5			23.1	54.1	32.6								21
ASD530FG-03-12S	12			20.9				55.9	34.4								22
ASD630FG-04-10S	10	R(PT) 1/2	24	18.5	28.6	26.5	25.9	64.3	32.6	64.8	57.3	57.6	50.1	49.6	42.1	18.6	21
ASD630FG-04-12S	12			20.9				66.1	34.4								22

* Reference dimensions for M5 x 0.8 and R(PT) threads after installation.

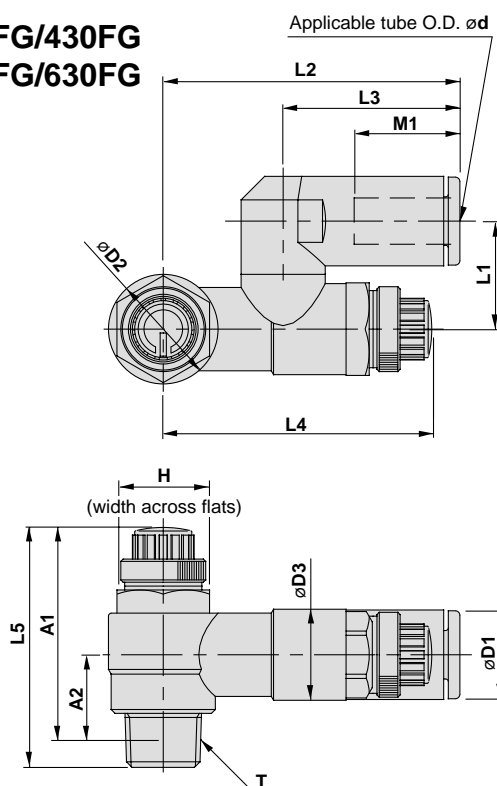
Series ASD-FG

Dimensions/Inch Size

ASD230FG



**ASD330FG/430FG
ASD530FG/630FG**



Inch size


Model	d	T	H	D1	D2	D3	L1	L2	L3	L4		L5		A1 *		A2 *	M1
										Max.	Min.	Max.	Min.	Max.	Min.		
ASD230FG-U10/32-01	1/8"	10-32 UNF	8	8.4	9.6	10	11.7	29.4	17.5	28.3	25.5	28.6	25.8	25	22.2	7.8	12.9
ASD230FG-U10/32-03	5/32"			9.3				35.2	23.3								16.5
ASD230FG-U10/32-05	3/16"			11.4				32.6	20.7								13.5
ASD230FG-U10/32-07	1/4"			12				32.6	20.7								13.5
ASD330FG-N01-05S	3/16"	NPT1/8	12.7	11.6	14.2	11.8	14	38.5	23.9	39.6	34.6	36.1	31.1	32	27	10.6	16.5
ASD330FG-N01-07S	1/4"			13.2			15.8	42.2	25.6	38.9	33.9						17
ASD330FG-N01-09S	5/16"			15.2				44.8	28.2								18.5
ASD430FG-N02-07S	1/4"	NPT1/4	17.5	13.2	18.5	15	18	43.9	25.6	41.7	36.7	40.4	35.4	34.6	29.6	11	17
ASD430FG-N02-09S	5/16"			15.2				46.5	28.2								18.5
ASD430FG-N02-11S	3/8"			18.5			19.7	49.3	31								21
ASD530FG-N02-07S	1/4"	NPT1/4	19	13.2	23	19.8	20.3	48.7	25.6	46.9	41.9	48.8	43.8	43	38	15.4	17
ASD530FG-N02-09S	5/16"			15.2				51.3	28.2								18.5
ASD530FG-N02-11S	3/8"			18.5			23.1	54.1	32.6								21
ASD530FG-N03-07S	1/4"	NPT3/8	19	13.2	23	19.8	20.3	48.7	25.6	46.9	41.9	46.5	41.5	40.3	35.3	14	17
ASD530FG-N03-09S	5/16"			15.2				51.3	28.2								18.5
ASD530FG-N03-11S	3/8"			18.5			23.1	54.1	32.6								21
ASD630FG-N04-11S	3/8"	NPT1/2	23.8	18.5	28.6	26.5	25.9	64.3	32.6	64.8	57.3	57.6	50.1	46.9	42.1	18.6	21


* Reference dimensions for 10-32UNF and NPT threads after installation.




Series *AS-FG/ASD-FG* Safety Instructions

These safety instructions are intended to prevent a hazardous situation and/or equipment damage. These instructions indicate the level of potential hazard by labels of "**Caution**", "**Warning**" or "**Danger**". To ensure safety, be sure to observe ISO 4414 ^{Note 1)}, JIS B 8370 ^{Note 2)} and other safety practices.

 **Caution** : Operator error could result in injury or equipment damage.

 **Warning** : Operator error could result in serious injury or loss of life.

 **Danger** : In extreme conditions, there is a possible result of serious injury or loss of life.

Note 1) ISO 4414 : Pneumatic fluid power – Recommendations for the application of equipment to transmission and control systems

Note 2) JIS B 8370 : General Rules for Pneumatic Systems

Warning

1. The compatibility of pneumatic equipment is the responsibility of the person who designs the pneumatic system or decides its specifications.

Since the products specified here are used in various operating conditions, their compatibility for the specific pneumatic system must be based on specifications or after analysis and/or tests to meet your specific requirements.

2. Only trained personnel should operate pneumatically operated machinery and equipment.

Compressed air can be dangerous if an operator is unfamiliar with it. Assembly, handling or repair of pneumatic systems should be performed by trained and experienced operators.

3. Do not service machinery/equipment or attempt to remove components until safety is confirmed.

1. Inspection and maintenance of machinery/equipment should only be performed after confirmation of safe locked-out control positions.
2. When equipment is to be removed, confirm the safety process as mentioned above. Cut the supply pressure for this equipment and exhaust all residual compressed air in the system.
3. Before machinery/equipment is restarted, take measures to prevent shooting-out of cylinder piston rod, etc. (Bleed air into the system gradually to create back-pressure.)

4. Contact SMC if the product is to be used in any of the following conditions:

1. Conditions and environments beyond the given specifications, or if product is used outdoors.
2. Installation on equipment in conjunction with atomic energy, railway, air navigation, vehicles, medical equipment, food and beverage, recreation equipment, emergency stop circuits, press applications, or safety equipment.
3. An application which has the possibility of having negative effects on people, property, or animals, requiring special safety analysis.



Series AS-FG/ASD-FG Flow Control Equipment Precautions

Be sure to read before handling.

Selection

Warning

1. Confirm the specifications.

The products appearing in this catalog are designed for use only in compressed air systems (including vacuum).

Do not use outside the specified ranges of pressure, temperature, etc., as this may cause damage or faulty operation. (Refer to specifications.)

Consult with SMC if fluids other than compressed air (including vacuum) are to be used.

Mounting

Warning

1. Read the instruction manual carefully.

The product should be mounted and operated with a good understanding of its contents. Also, keep the manual where it can be easily referred to at any time.

2. Ensure space for maintenance.

Ensure the necessary space for maintenance.

3. Strictly observe the fastening of screws and tightening torque.

When mounting, tighten screws with the recommended torque.

Piping

Caution

1. Preparation before piping

Before piping is connected, it should be thoroughly blown out with air (flushing) or washed to remove chips, cutting oil and other debris from inside the pipe.

2. Wrapping of pipe tape

When screwing together pipes, fittings, etc., be certain that chips from the pipe threads and sealing material do not get inside the piping.

Further, when pipe tape is used, leave 1.5 to 2 thread ridges exposed at the end of the threads.

Operating Environment

Warning

1. Do not operate in an atmosphere of corrosive gases, chemicals, sea water, fresh water or water vapor, or where any of these may come into contact with the product.

2. In locations which receive direct sunlight, the sunlight should be blocked.

3. Do not operate in locations where vibration or shock will occur.

4. Do not operate in a location near a heat source or where radiated heat will be received.

Air Supply

Warning

1. Types of fluid

This product is designed for use with compressed air. Consult with SMC if a different fluid is to be used.

Consult SMC regarding products for general purpose fluids, to confirm which fluids may be used.

2. When there is a large amount of drainage

Compressed air containing a large amount of drainage may cause malfunction of pneumatic equipment. An air dryer or Drain Catch should be installed upstream from filters.

3. Drain management

If air filter drains are not flushed regularly, the drainage will flow downstream and this may lead to the malfunction of pneumatic equipment.

In cases where the management of drain flushing will be difficult, the use of filters with automatic drains is recommended.

For details on the qualities of compressed air mentioned above, refer to SMC's "Air Cleaning Equipment."

4. Types of air

Do not use compressed air containing chemicals, synthetic oil which includes organic solvents, salt or corrosive gases, etc., as this may cause damage or malfunction.

5. In cases where a large amount of carbon dust is generated from the compressor, it will adhere to valves and may cause malfunction operation. In this situation, the use of a mist separator is recommended.

Maintenance

Warning

1. Perform maintenance in accordance with procedures in the instruction manual.

Improper handling may cause damage or malfunction of equipment or machinery.

2. Maintenance operations

Improper handling of compressed air is dangerous. Therefore, in addition to observing the product specifications, replacement of elements and other maintenance activities should be performed by personnel having sufficient knowledge and experience pertaining to pneumatic equipment.

3. Drain flushing

Drainage should be flushed from air filters and other drains on a regular basis. (Refer to specifications.)

4. Pre-maintenance inspection

When removing this product, turn off the electric power, and be certain to shut off the supply pressure and exhaust the compressed air in the system. Proceed only after confirming that all pressure has been released to the atmosphere.

5. Post maintenance inspection

After installation, repair or reconstruction, reconnect the compressed air and electric power, and then perform inspections for proper operation and air leakage. If the sound of air leakage can be heard, or if the equipment does not operate properly, stop operation and confirm that it is mounted correctly.

6. Disassembly and alteration prohibited.

Do not disassemble the unit or make any alterations to it.



Series AS-FG/ASD-FG Specific Product Precautions

Be sure to read before handling.

Refer to pages 15 and 16 for safety instructions and flow control equipment precautions.

Selection

Warning

1. This product cannot be used as a stop valve requiring zero air leakage.

A certain amount of air leakage is allowed for in the product's specifications.

2. Confirm whether PTFE can be used.

PTFE (tetrafluoroethylene resin) powder is contained in the sealing agent. Confirm that there will be no operational problem.

Installation and Adjustment

Warning

1. Confirm that the lock nut is not loose.

If the lock nut is loose, there may be dangerous changes in actuator speed.

2. The number of opening and closing revolutions of the needle valve should be adjusted within the range of the specifications.

Since it has a pull-out stop mechanism, it will not revolve past the limit. Confirm the number of revolutions for the product to be used, as excessive turning of the needle will cause damage.

3. Mount after confirming the direction of flow.

Mounting backwards is dangerous, because the speed adjustment needle will not work and the actuator may lurch suddenly.

4. To adjust the speed, start with the needle in the completely closed position, and then adjust by opening gradually.

When the needle valve is opening, the actuator may lurch suddenly creating a dangerous situation.

Moreover, the needle valve is closed by turning to the right, and opened by turning to the left. Therefore, the actuator speed is reduced by turning to the right and increased by turning to the left.

5. Install and remove by tightening or loosening the hexagon wrench flats on Body B with a suitable wrench.

Damage may occur if any other part is used. Adjustment of the position after mounting should be performed by turning Body A by hand.

6. Do not use a universal type fitting where rotation normally occurs.

The fitting section may be damaged.

Tightening Torque

Caution

1. The proper tightening torque for pipe fittings is as shown in the table. As a rule, they should be tightened 2 to 3 turns with a tool after first tightening by hand. Be careful not to cause damage by over-tightening.

Male thread	Proper tightening torque N·m	Width across flats mm	Nominal size of adjustable angle wrench mm
M5 10/32-UNF	1/6 turn after hand tightening	8	100
1/8	7 to 9	14	150
1/4	12 to 14	17	200
3/8	22 to 24	21	200
1/2	28 to 30	24	200

Handling of One-touch Fittings

Caution

1. Refer to CAT. E501-B "Air Fittings and Tubing" pages 143 through 145 for handling of One-touch fittings.

Series ASD-FG Specific Product Precautions

Operation

Caution

1. Controlling a single acting cylinder

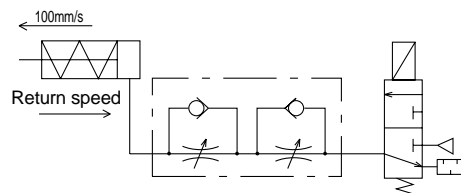
When controlling a single acting cylinder, the cylinder's return speed will differ depending on the operating conditions. Operate after confirming the maximum return speeds shown in the table below.

Speed controller	Cylinder	Solenoid valve	Tube	Silencer	Maximum return speed mm/s		
					100	200	300
ASD230FG	CJ2	VJ500	TU0604 1m	AN110-01			
ASD330FG	CM2	VZ500	TU0604 1m	AN110-01			

<Operating conditions>

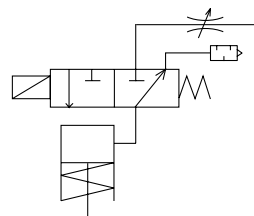
- Cylinder extension speed: 100mm/s
- Meter-out needle fully open

* Values for pressure of 0.5MPa and temperature of 20°C.



(Reference) Recommended circuit for high return speed

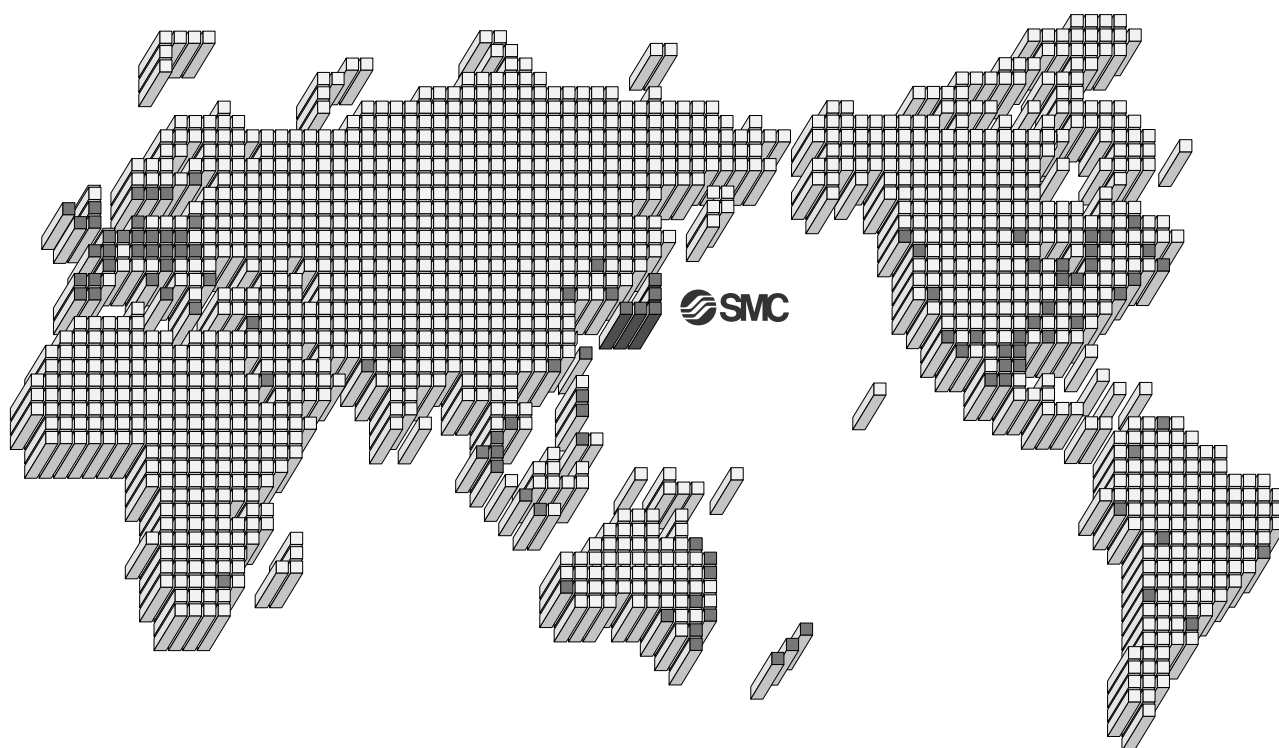
When low extension speed and high return speed are desired, the following circuit using 3 ports is recommended.



Note) Use Series AS-F with -X214 for the throttle valve.



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